

CLAIMS

What is claimed is:

1. A method of evaluating a function of a receptor
5 protein tyrosine kinase comprising the following steps:

(a) transfecting a nucleic acid vector into
cells, wherein said vector encodes a chimera comprising an
extracellular region and an intracellular region, wherein
said intracellular region is from said receptor protein
10 tyrosine kinase;

(b) contacting said cells with an antibody,
wherein said antibody has specific binding affinity to said
extracellular region; and

(c) monitoring an effect on said cells.

15 2. The method of claim 1, where said extracellular
region consists of an extracellular region of a receptor
protein tyrosine kinase selected from the group consisting
of TRK, EGFR, PDGFR, and RET.

20 3. The method of claim 1, wherein said intracellular
region consists of an intracellular region of an orphan
receptor protein tyrosine kinase.

4. The method of claim 3, wherein said orphan
receptor protein tyrosine kinase is selected from the group

consisting of C-RET, SEK, MCK-10, AXL, TYRO3, MER, EPH, ECK, EEK, ERK, ELK, EHK1, EHK2, SEK, HEK, HEK2, MYK1, CEK9, MYK2, MDK1, IRR, CCK4, RYK, DDR, TYRO10, ROS, LTK, ALK, ROR1, ROR2, and TOR.

5 5. The method of claim 4, wherein said orphan receptor protein tyrosine kinase is C-RET.

6. The method of claim 1, wherein said cells and said extracellular region are from different species.

10 7. The method of claim 6, wherein said cells are mammalian.

8. The method of claim 6, wherein said extracellular region is isolated from a chicken.

15 9. The method of claim 1, wherein said antibody has specific binding affinity to a TRK extracellular region isolated from a chicken.

10. The method of claim 1, wherein said effect is a change or an absence of a change in cell phenotype.

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20 11. A method of identifying compounds that modulate the function of a receptor protein tyrosine kinase in cells, wherein said method comprises the following steps:

(a) transfecting a nucleic acid vector into said cells, wherein said vector encodes a chimera comprising an extracellular region and an intracellular region, wherein said intracellular region is from said receptor protein tyrosine kinase;

(b) contacting said cells with one or more compounds;

(c) contacting said cells with an antibody, wherein said antibody has specific binding affinity to said extracellular region; and

(d) monitoring an effect on said cells.

12. The method of claim 11, wherein said extracellular region consists of an extracellular region of a receptor protein tyrosine kinase selected from the group consisting of TRK, EGFR, PDGFR, and RET.

13. The method of claim 11, wherein said intracellular region consists of intracellular region of an orphan receptor protein tyrosine kinase.

14. The method of claim 13, wherein said orphan receptor protein tyrosine kinase is selected from the group consisting of C-RET, SEK, MCK-10, AXL, TYRO3, MER, EPH, ECK, EEK, ERK, ELK, EHK1, EHK2, SEK, HEK, HEK2, MYK1, CEK9, MYK2, MDK1, IRR, CCK4, RYK, DDR, TYRO10, ROS, LTK, ALK, ROR1, ROR2, and TOR.

15. The method of claim 14, wherein said orphan
receptor protein tyrosine kinase is C-RET.

16. The method of claim 11, wherein said cells and
said extracellular region are from different species.

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17. The method of claim 16, wherein said cells are
mammalian.

18. The method of claim 16, wherein said
10 extracellular region is isolated from a chicken.

19. The method of claim 11, wherein said antibody has
specific binding affinity to a TRK extracellular region
isolated from a chicken.

20. The method of claim 11, wherein said effect is a
15 change or an absence of a change in cell phenotype.

21. The method of claim 11, wherein said effect is a
change or an absence of a change in the catalytic activity
of said intracellular region.

22. The method of claim 11, wherein said effect is a
20 change or an absence of a change in an interaction between
said intracellular region and a natural binding partner.

23. A method of identifying compounds that modulate the function of C-RET receptor protein tyrosine kinase comprising the following steps:

- 5 (a) expressing said C-RET in cells;
(b) contacting said cells with one or more compounds; and
(c) monitoring an effect on said cells.

24. The method of claim 23, wherein said effect is a change or an absence of a change in cell phenotype.

10 25. The method of claim 23, wherein said effect is a change or an absence of a change in catalytic activity of said C-RET receptor.

26. The method of claim 23, wherein said effect is a change or an absence of a change in the interaction between
15 said C-RET receptor and a natural binding partner.